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PATENT



SPECIFICATION

*Application Date, Apr. 5, 1916. No. 4986/16.*

*Complete Left, Oct. 5, 1916.*

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PROVISIONAL SPECIFICATION.

Improvements in or relating to Dyeing.

We, NORMAN MALCOLMSON, of 7, Moorgate Street, London, E.C., Banker, and HEXTALL HARVEY KELSEY, of 37, Leighton Gardens, London, N.W., Secretary to Limited Company, do hereby declare the nature of this invention to be as follows:—

5 The present invention consists broadly in the employment of sea-weed as a dye-stuff. The inventor finds that pigments of various colours are contained in sea-weed of e.g. the Melanosperm, Rhodosperm and Chlorosperm groups. Certain colours are remarkably constant in large natural algæ groups. Thus the Diatomaceæ exhibit a yellow colour, the Eucaceæ a brown or olive, and  
10 the Florideæ a beautiful rose-red.

The inventor has discovered that colours may be imparted to fabrics by merely boiling the particular sea-weed proposed to be used, with the fabric to be dyed: for example from one ounce upwards of the weed to a pound of the fabric to be dyed. He has also made a paste of the weed by boiling it until  
15 it becomes soft and then crushing and macerating it.

This paste may then be used as a dye-stuff.

When using this paste the colour is imparted to the fabric in much less time than when the raw weed is used. The paste can also be evaporated to dryness and the dry residue ground to powder. This powder is then used as the dye-  
20 producing substance.

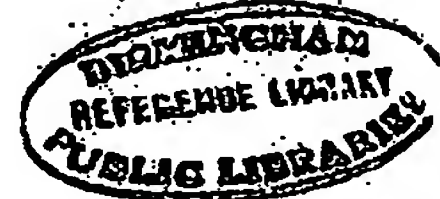
The inventor has found that when using this powder or the paste the addition to the dye-bath of a sulphuric-acid solution intensifies and deepens the colour produced on the fabric. As an example  $\frac{1}{10}$  of an ounce of powder and  $\frac{1}{16}$  of an ounce of concentrated sulphuric acid mixed with  $\frac{1}{4}$  pint of  
25 water will make a good dyeing-liquid.

Or the sea-weed may be dried and ground, or first roasted and then ground in the same way as coffee and chicory are ground, and the resultant powder can be used as a dye-producing substance.

The sea-weed or the paste or powder thereof above described can be used  
30 in water or in spirit and if desired pigments or dye-stuffs from other sources can be mixed with it, for instance when shades other than those obtainable from the sea-weed itself are to be produced.

The colours imparted to the fabric from the sea-weed dyes are fast colours and do not necessarily involve the use of mordants. All the known dye-stuffs, mordants, liquors, or topping baths may be used, either separately or mixed  
35 with the sea-weed, powder or paste or their solutions for the purpose of varying, intensifying or fixing any of the colours if desired.

[Price 6d.]



intensifies and deepens the colour produced on the fabric. As an example  $\frac{1}{16}$  of an ounce of powder and  $\frac{1}{16}$  of an ounce of concentrated sulphuric-acid mixed with  $\frac{1}{2}$  pint of water will make a good dyeing-liquid.

The colours imparted to the fabric from the sea-weed dyes aforesaid are fast  
5 colours and do not necessarily involve the use of mordants.

All the known dye-stuffs, mordants, liquors, or topping baths may be used, either separately or mixed with the sea-weed, powder or paste or their solutions for the purpose of varying, intensifying or fixing any of the colours if desired.

Different types of weed or the colours obtained therefrom can be mixed, to  
10 obtain varying shades and tints.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that we are aware that Dulse or Duilsig (*Rhodymenia edulis*) has been used as a dye and that we make no claim to the employment of Dulse as a dye-stuff, nor  
15 do we claim anything described or claimed in the Specification of expired Letters Patent No. 142/81 (Stanford) or 1789/02 (Johnson) but what we claim is:—

1. A process of dyeing by putting the material that is to be dyed into a bath of water or spirit containing either in the raw state or in paste or powder  
20 form a sea-weed of the Rhodosperm group (except Dulse) or of the Chlorosperm group.

2. A process of dyeing by putting the material that is to be dyed into a bath of water or spirit containing either in the raw state or in paste or powder form a seaweed of the Melanosperm group (except laminaria powder when it  
25 is contained in a paste with indigo according to the Specification of expired prior Letters Patent No. 1789 of 1902 granted to J. Y. Johnson).

3. The addition to a dyeing-liquid derived from Melanosperm or Chlorosperm or Rhodosperm sea-weed of sulphuric-acid for the purpose of intensifying or varying the colour imparted by the liquid to the material dyed.

30 Dated this 5th day of October, 1916.

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